A.D. 1898. Sep. 3. Nº. 18,883.

RODRIGUEZ'S Complete Specification.

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18,883

SHEET 1.

Fig. 1.

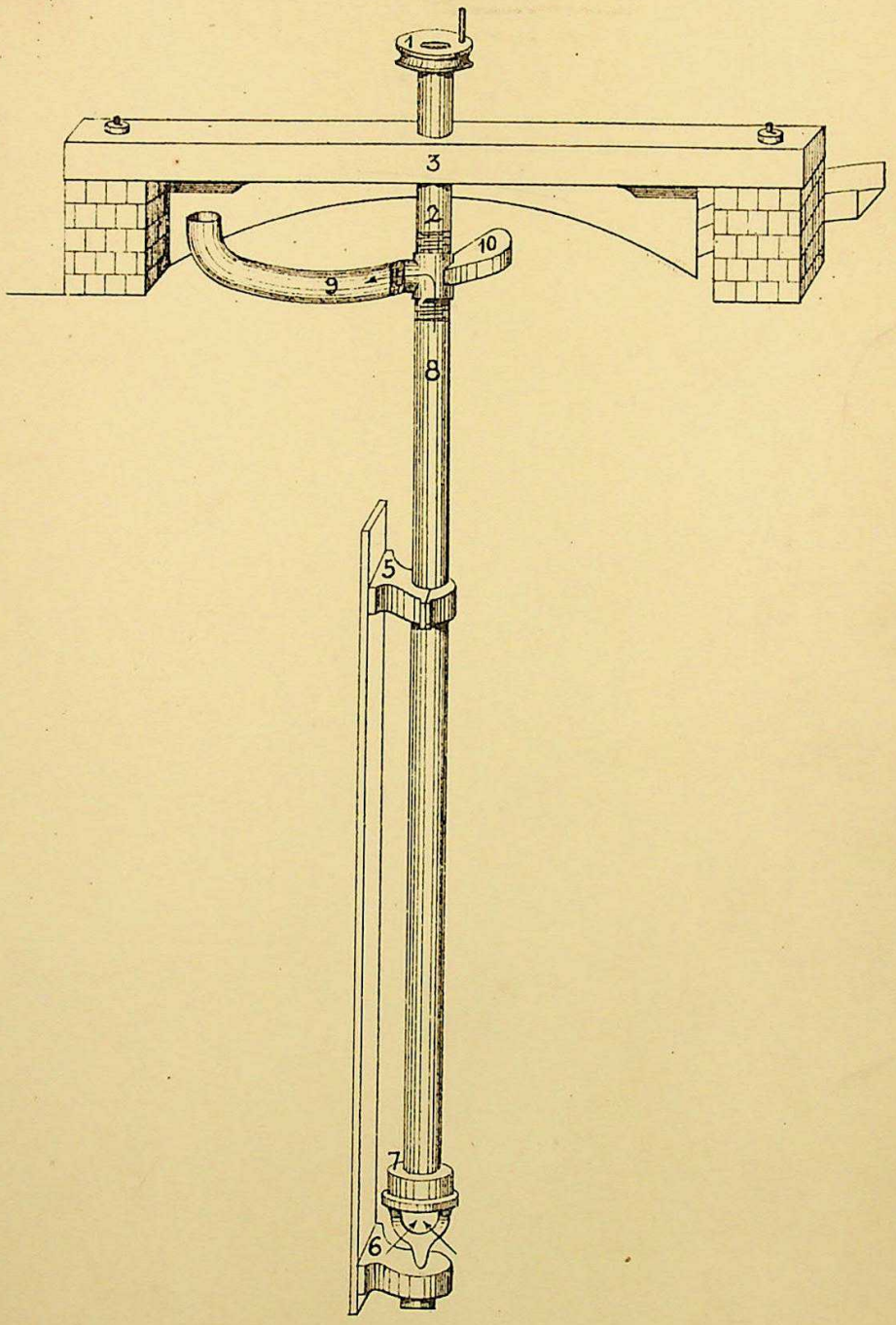
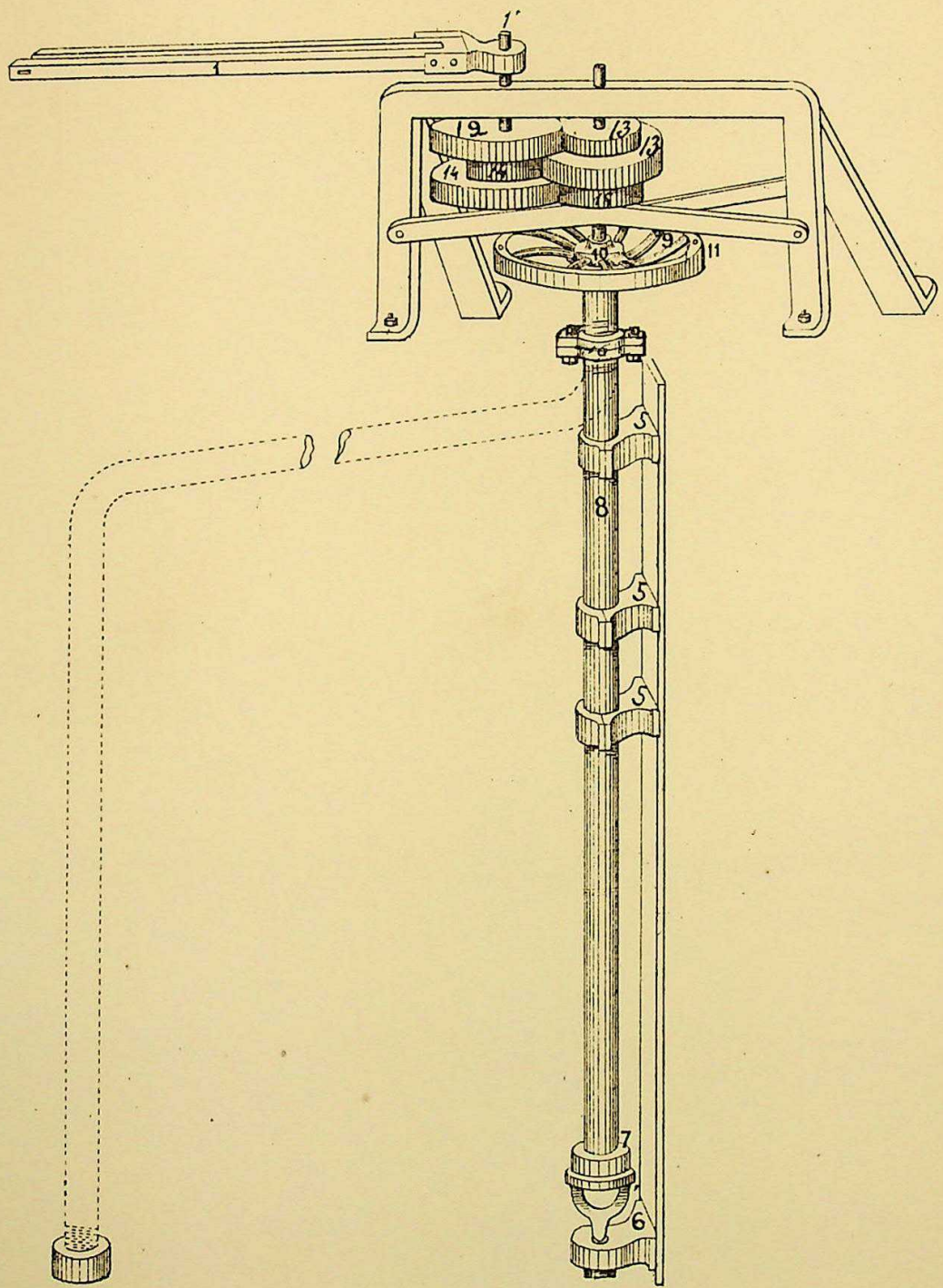


Fig. 2.



[This Drawing is a reproduction of the Original on a reduced scale]

18,883

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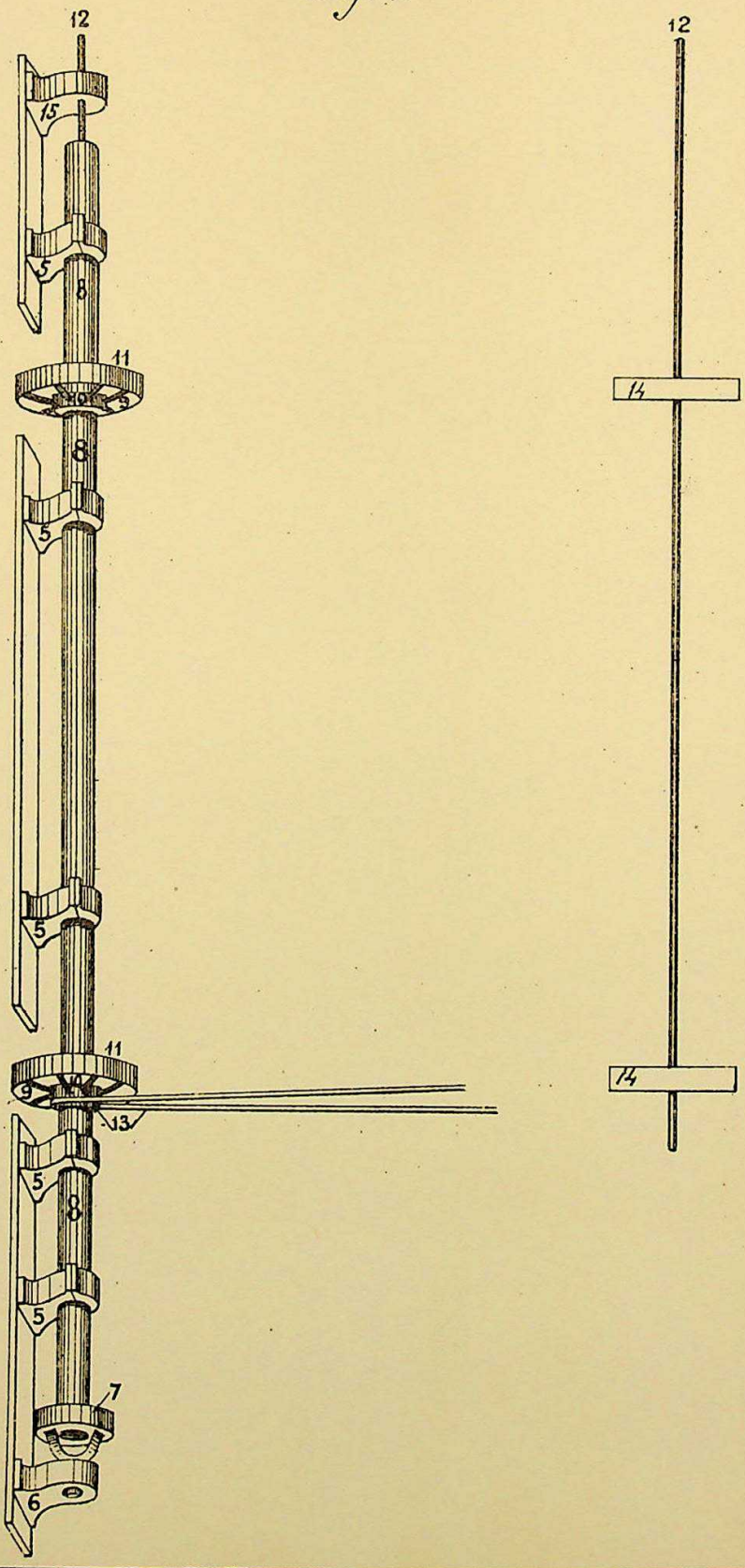
SHEET 3.

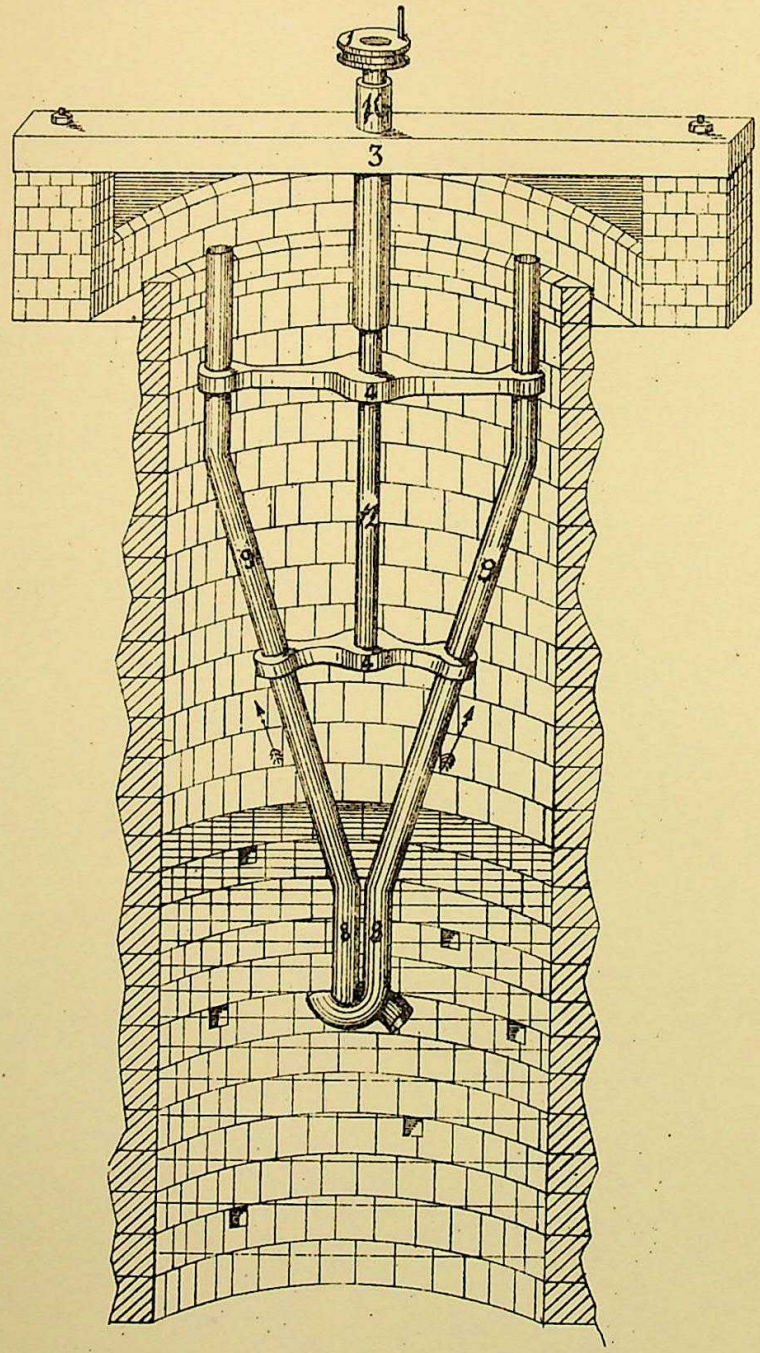
Fig. 3



Pumps - Rotary
Single Piston
18-983

(4 SHEETS)
SHEET 4

Fig. 4.



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N° 18,883 A.D. 1898

Date of Application, 3rd Sept., 1898—Accepted, 6th May, 1899

DUPLICATE

COMPLETE SPECIFICATION.

Improvements relating to the Raising of Liquids, Grain, or the like, and to Apparatus therefor.

I, ANTONIO RODRIGUEZ, of Albacete, in the Kingdom of Spain, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to the raising of liquid or solid matter, utilising the vacuum produced in a rapidly rotating tubular body by the centrifugal action developed in one of its parts.

I will now describe the principal methods by which the invention may be most advantageously carried into practice, although they may all be modified without departing from the principle upon which the invention is based.

In the accompanying drawings:

Figure 1 is a perspective view showing one form of apparatus for raising liquids.

Figure 2 is a similar view of an apparatus adapted to be driven by horse power after the manner of a horse capstan.

Figure 3 represents another modification of the improved apparatus, wherein a better result is obtained and

Figure 4 shews a further modification.

Referring to Figure 1, which shows the simplest form of the mechanism for the purpose of my invention when applied to depths up to nine meters; 8 is a tube which has in its lower part a check valve 7 and a pivot that turns on the bearing 6. The tube has a suction pipe 9 and opposite to the latter there is a counter weight 10 adapted to balance it. In order to hold the tube 8 in an upright position and to facilitate its rotation, I arrange about midway of its length a bracket guide 5, through which the said tube passes the latter having on its upper part a shank 2 that passes through the wood block 3 and carries at the end a pulley 1 provided with a winch or handle in order to drive it at will. The arrows indicate the direction followed by the liquid.

The main part of the apparatus is the pipe 9 wherein a vacuum is produced by the liquid itself impelled by the rapidity of the centrifugal motion.

Figure 2 is a view of another apparatus adopted so as to be driven by horse power and has for its object to raise the water nine meters high and to cool it on expulsion. The apparatus comprises a beam 1 to which the horse is yoked, a spindle 1^1 that passes through the beam, the seat or bracket for supporting the apparatus and the gearing connected with same. The upper gear wheel 12 transmits accelerated motion to the smaller wheel 13 which in connection with other two wheels 14 and 15 produces the motion of the shaft that carries the fly-wheel 11.

This fly-wheel comprises three principal parts *viz.*: the hub 10 which connects tube 8 to its branch pipes 9 Figure 1 these branch pipes are connected with the hub 10 at one end and at the other with a fly-wheel 11 whose object is to prevent the separation of the water strata stored in pipes 9 and the entrance of air. The lower part of the apparatus is altogether similar to the one described in the preceding Figure with the exception of a small variation shown in dotted lines. The variation consists in the

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application of a bent or other shaped tube which may be conducted to another point more or less distant. For this purpose the said tube is joined to the one connected to the suction fly-wheel by means of a stuffing-box 16 in order to allow the rotation of the upper tube and fly-wheel and to prevent air entering the joint.

Figure 3 represents another modification of the apparatus in the manner of a progressive improvement. It differs from the others by its being exhausting and propelling with the necessary power to raise the liquid more than fifty meters high. As shewn in the drawing, its construction is the same as that of Figure 2 only that the tube 8 carries two hollow fly-wheels 11, 11 mounted in such a way that they will produce the exhausting and propelling action the rotating motion being consequently less rapid than if a single fly-wheel was employed. It has besides inside the tube an additional shaft 12 with two blades 14—14 fixed on the axle at a certain distance apart, each of which blades operate within each of the two fly-wheels for the purpose hereafter described. This shaft 12 is fastened at the top to the bracket 15. The working of the apparatus is as follows. Once it is started by means of the belt 13, which communicates with the engine or motor, the arms 9 of the lower fly-wheel form the vacuum and the water begins to rise through tube 8 being propelled towards the fly-wheel and as soon as it has a tendency to cease rotating within the wheel, the water already stored therein will tend to escape through an opening that leads to the inside of the upper vertical tube and ascend to the upper fly-wheel which in turn works in the same way. In order that the rotation of the liquid may be checked I provide within each fly-wheel 11, 11, the blades 14, 14, which, being fixed to the shaft 12, which does not rotate, have the effect of checking the rotation of the liquid in each fly wheel, and thus enables the liquid to ascend under the pressure of the atmosphere from each fly wheel to that immediately above it.

Figure 4 represents a modification of Figure 1 and comprises a pulley 1 fixed to the vertical shaft 12 guided through pipe 16 which latter is fixed on the bearing of a cross beam 3. The shaft 12 has two arms or horizontal cross bars 4—4 intended to carry the upright tubes and the propelling tubes 9—9. The parallel and upright portion of these tubes 9—9 is intended for guiding the liquid or the like whilst the bent shape of the lower part 8 is intended for raising the liquid. The inclined tubes 9—9 are also adopted to raise grain, dry sand and other like materials and I can also employ two cones an inner one and an outer one instead of the tubes.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. The raising of liquids, grain or the like by the centrifugal force of a rotating suction pipe or tube one end of which projects into the liquid to be raised while the other or upper end thereof is provided with a branch pipe or tube forming an outlet for the liquid or the like substantially as described with reference to Figure 1 of the drawing.

2. An apparatus for raising liquids grain or the like by the rotation of a suction pipe or tube such rotation being effected by a kind of horse-capstan acting upon a train of gear wheels connected to the said suction pipe substantially as described and shown in Figure 2 of the drawing.

3. The modified form of apparatus for raising water grain or the like substantially as hereinbefore described with reference to Figure 3 or with reference to Figure 4 of the drawing.

Dated this 3rd day of September 1898.

HASELTINE, LAKE & Co.,
45, Southampton Buildings, London, W.C., Agents for the Applicant.

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